International Livestock Research Institute

Training course report

Electronic syndromic surveillance of livestock diseases in Marsabit, Kenya

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Contents

Acknowledgements iii

Introduction 1

Training summary 2

- Open Data Kit refresher course 2
- Retraining on syndromic surveillance data collection 2
- Surveillance of abattoirs 2
- Reporting of notifiable diseases and zero reporting 3
- Surveillance of drug sales 3
- Analysis of the e-surveillance system 4

Program 5

List of participants 6

Acknowledgements

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Introduction

The Accelerated Value Chain Development project – Livestock Component, in collaboration with the Department of Veterinary Services, Marsabit County, conducted a training workshop in Marsabit on 27 September 2018 aimed at launching an expanded electronic surveillance (e-surveillance) system for livestock diseases in the county and reviewing the system that had been launched for syndromic surveillance and which has since been expanded to include surveillance of abattoirs and agrovets, reporting of notifiable diseases and zero reports.

The project has developed a disease manual based on the endemic diseases in counties in arid and semi-arid regions; the manual was used to train the community disease reporters and formed the basis of the e-surveillance system. The e-surveillance team had been expanded to include additional personnel in the county who will help to implement the expanded e-surveillance system.

The training was conducted in form of lectures with practical sessions after each lecture. A training setup was established to enable the participants interact with the data collection tools and experience how the data will be analysed and used for decision-making.

At the end of the training, it was recommended that:

- the misspelt names of the community disease reporters and villages be corrected;
- the expanded e-surveillance system be put into use as soon as possible;
- the Marsabit Information and Communication Technology team increase its participation in the project by taking more responsibilities in the running of the system;
- a WhatsApp group be created for quick communication and to discuss matters related to e-surveillance; and
- the county veterinary department allocate adequate funds to sustain the e-surveillance system.

Training summary

Open Data Kit refresher course

The e-surveillance system extensively uses a set of data collection tools on the Open Data Kit platform hence the participants were required to be able to use Open Data Kit Collect on an Android platform. Most participants were familiar with the Android platform and over 70% had used Open Data Kit Collect to collect data. Because of time constraints, the refresher on Open Data Kit was carried out as the training progressed.

For each data collection tool, the participants learned how to:

- navigate through the Open Data Kit Collect application;
- get new blank forms for data collection;
- fill the forms while paying attention to mandatory fields and fields with constraints;
- finalize the forms with the collected data; and
- submit the finalized forms to the online server.

Retraining on syndromic surveillance data collection

The participants were taken through a refresher on syndromic surveillance. They learned of the 10 categories of disease syndromes (respiratory condition, generalized skin infection, stomatitis pneumoenteritis complex, nervous syndrome, abortion, diarrhoea, haemorrhagic illness, red urine, endemic diseases and mastitis), the different diseases under each syndrome and the symptoms for each disease. This categorization forms the basis of syndromic surveillance and is used to complete surveillance tool.

The different aspects of the syndromic surveillance tool were covered including how to determine the herd size at risk and how to fill start and end dates of a set of syndromes especially when the farmers are not very clear on when the syndromes started.

The question on differential diagnosis was exhaustively discussed. Participants noted that since this was a syndromic surveillance, it would be quite difficult for a veterinary officer to make an accurate diagnosis just from a telephone call, hence the need for a differential diagnosis question and not a provisional diagnosis question.

Surveillance of abattoirs

As part of the expanded surveillance and with support from the CGIAR Research Program on Agriculture for Nutrition and Health, surveillance of abattoirs was included. Marsabit County has five abattoirs, one each in Moyale, Laisamis, Marsabit Town, Sololo and North Horr. These abattoirs have dedicated meat inspectors who inspect meat daily and file a report on the observed lesions from the carcasses and organs. It is this report that will be included in the e-surveillance system. It is envisaged that these reports will offer a truer picture of the diseases circulating within the flocks as compared to the syndromic surveillance.

The participants were introduced to the concept of e-surveillance for abattoirs, the gap that it aims to fill and its place and importance in the wider disease surveillance in Marsabit County. The current ante mortem and post mortem practices were discussed for each abattoir. The abattoirs have a myriad of challenges including lack of adequate resources, designated personnel and holding facilities for the animals. The abattoir personnel also travel long distances between their homes and the abattoirs and in some cases, this poses a security risk to them.

The participants discussed the recommended standard operating procedures for an abattoir; some of the procedures, especially ante mortem, were strictly adhered to because of some of the challenges noted above. They agreed that there was no need to collect data merely for the sake of it and the collected data should be of high quality. For this reason, the ante mortem section of abattoir surveillance was excluded. The participants were trained on how to fill their normal records on the e-surveillance forms with emphasis on correctly specifying observed lesions for each carcass and/or organ.

Reporting of notifiable diseases and zero reporting

The Department of Veterinary Services has designed data collection tools to help the country in reporting of notifiable diseases and confirmatory reporting of the absence of specific diseases. These tools are being used by all counties in the country to report disease incidences and lack of circulating diseases. After consulting with the department, it was agreed that these two forms would be included in the e-surveillance system.

The participants were trained on the importance of reporting notifiable diseases and zero reports and when these forms are to be filled. They were also trained on the diseases that are notifiable according to the World Organisation for Animal Health guidelines, diseases that are to be zero-reported, how to enter reports in the e-surveillance tools and how the data will be analysed and used in decision-making.

Surveillance of drug sales

Agrovets are being used as another point of livestock disease surveillance. When livestock farmers or pastoralists visit agrovets to buy drugs for their animals, they describe the symptoms observed in their animals and the veterinarians prescribe the drugs to be used to treat the animals. This is a unique opportunity for livestock disease surveillance as this information can be included as part of the wider disease surveillance.

Surveillance of drug sales was included in the expanded e-surveillance system whereby agrovets record the drugs sold against a set of syndromes that the farmers or pastoralists report. Two agrovet representatives participated in the training workshop and were trained on capturing drug sales against the syndromes reported by the farmers or pastoralists.

Analysis of the e-surveillance system

The e-surveillance system was rolled out in Marsabit in early 2017 and this training workshop was an opportune time to evaluate its performance to date, acknowledge its successes and address any challenges encountered.

Successes

- The e-surveillance system is a modern way of disease surveillance for the county.
- The system has eased the process of disease reporting as the electronic forms are easier to fill than paper forms.
- The system has reduced the paperwork and the number of physical records.
- The automatic analysis of received data has reduced the turnaround time between receipt of data and launching a response.

Challenges

- A few gaps were noted in the data collection forms. These include:
    - The list of villages was not exhaustive.
    - The corresponding list of community disease reporters was not exhaustive and had some missing names.
    - The names of some community disease reporters and villages were misspelt.
- At one point, there was a considerable system downtime of two months.
- The county is yet to provide airtime for the sub-county veterinarians to consistently communicate with the community disease reporters.
- There is need to increase the number of disease reporters.

Program

Time	Description	Responsible
0830 hours	Welcome and participant introductions	All
0850 hours	**Opening session** Chief Livestock Officer Director, Veterinary Department	Dr. Wario Boku Bodha
0910 hours	Accelerated Value Chain Development: Introduction and overview of e-surveillance system	Adan Kutu Absolomon Kihara
0940 hours	Review of the e-surveillance system: Successes, challenges and gaps	All
1030 hours	Health break	
1100 hours	Disease surveillance refresher training: Syndromic surveillance	Absolomon Kihara
1145 hours	**Disease surveillance training** Notifiable diseases Zero reports Abattoirs Agrovets	Absolomon Kihara
1300 hours	Lunch	
1400 hours	**ODK Training** Syndromic surveillance Notifiable diseases Zero reports Abattoirs Agrovets	Absolomon Kihara
1500 hours	**Action planning and way forward** Forms update	All
1600 hours	End of meeting	

List of participants

Trainees

No.	Name	Country of origin	Gender	Country Classification
1	Michael Baariu M'imunya	Kenya	M	Developing
2	Wario B. Liban	Kenya	M	Developing
3	Galma Wako Roba	Kenya	M	Developing
4	Maurice Mboya Ugum	Kenya	M	Developing
5	Francis K. Serewa	Kenya	M	Developing
6	Adan W. Dabaso	Kenya	M	Developing
7	Mohamedamin Okash Ibrahim	Kenya	M	Developing
8	Osman J. Wako	Kenya	M	Developing
9	Stephen Mutahi	Kenya	M	Developing
10	Changayo Orkhobesle	Kenya	M	Developing
11	Woto Forolle	Kenya	M	Developing
12	Elema Bulle Halakhe	Kenya	M	Developing
13	Amina Gulleid	Kenya	F	Developing
14	Isack Keena Thurolo	Kenya	M	Developing
15	Bernard Chege Mugo	Kenya	M	Developing
16	Boku Bodha	Kenya	M	Developing
17	Basele Stephen	Kenya	M	Developing
18	Paul Kusho	Kenya	M	Developing
19	Diba Denge Tasi	Kenya	M	Developing

Trainers

Name	Institution
Absolomon Kihara	Badili Innovations
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